

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the above-referenced application.

Listing of Claims:

1. – 180. (Cancelled)

181. (New) A method for detecting an event on a wire comprising:

fitting each of a plurality of functions to a portion of data points representing a received waveform;

determining a characteristic for each of said plurality of functions;

evaluating said characteristic of each of said plurality of functions at data points representing said received waveform; and

detecting an event using said characteristic of each of said plurality of functions.

182. (New) The method of Claim 181, further comprising:

compensating said received waveform prior to said determining a plurality of functions.

183. (New) The method of Claim 181, wherein the event is one of: a connector, a cut, a nick, a crimp, damage to wire insulation due to age, damage to wire insulation due to coupling of the wire with another element.

184. (New) The method of Claim 181, further comprising:

storing data of said waveform in accordance with said event detected.

185. (New) The method of Claim 181, further comprising:

classifying said event.

186. (New) The method of Claim 181, wherein said portion of data points has $N+M+1$ data points, N representing a number of data points prior to a first one of said data points included in said portion, M representing a number of data points prior to said first one of said data points included in said portion, and the method further comprising:

determining a first of said plurality of functions in accordance with said $N+M+1$ data points.

187. (New) The method of Claim 181, further comprising:

determining an event detection threshold.

188. (New) The method of Claim 187, further comprising:

determining at least one peak using said characteristic that exceeds said event detection threshold;

storing data corresponding to said at least one peak; and

classifying said data as one of a plurality of events.

189 (New) The method of claim 181, wherein said characteristic is a derivative.

190. (New) The method of claim 189, wherein said derivative is a first derivative.

191. (New) The method of claim 189, wherein said derivative is a second derivative.

192. (New) The method of claim 181, wherein said function is a polynomial function.

193. A computer program product for detecting an event on a wire comprising:

executable code that fits each of a plurality of functions to a portion of data points representing a received waveform;

executable code that determines a characteristic for each of said plurality of functions;

executable code that evaluates said characteristic of each of said plurality of functions at data points representing said received waveform; and

executable code that detects an event using said characteristic of each of said plurality of functions.

194. The computer program product of Claim 193, further comprising:

executable code that compensates said received waveform prior to said determining a plurality of functions.

195. The computer program product of Claim 193, wherein the event is one of: a connector, a cut, a nick, a crimp, damage to wire insulation due to age, damage to wire insulation due to coupling of the wire with another element.

196. The computer program product of Claim 193, further comprising:

executable code that stores data of said waveform in accordance with said event detected.

197. The computer program product of Claim 193, further comprising:

executable code that classifies said event.

198. The computer program product of Claim 193, wherein said portion of data points has $N+M+1$ data points, N representing a number of data points prior to a first one of said data points included in said portion, M representing a number of data points prior to said first one of said data points included in said portion, and the computer program product further comprising:

executable code that determines a first of said plurality of functions in accordance with said $N+M+1$ data points.

199. The computer program product of Claim 193, further comprising:

executable code that determines an event detection threshold.

200. The computer program product of Claim 199, further comprising:

executable code that determines at least one peak using said characteristics that exceed said event detection threshold;

executable code that stores data corresponding to said at least one peak; and

executable code that classifies said data as one of a plurality of events.